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'Fractures' in food practices: exploring transitions towards sustainable food

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Abstract

Emissions arising from the production and consumption of food are acknowledged as a major contributor to climate change. From a consumer's perspective, however, the sustainability of food may have many meanings: it may result from eating less meat, becoming vegetarian, or choosing to buy local or organic food. To explore what food sustainability means to consumers, and what factors lead to changes in food practice, we adopt a sociotechnical approach to compare the food consumption practices in North West England with two differing consumer groups. The first, supermarket shoppers 'embedded' in the mainstream food regime; and the second, who self-identify as sustainable food practitioners, and who perform a range of sustainable food consumption practices. We examine how our two groups experience changes in food practices and identify 'fractures' stemming from lifecourse and public events that emerge as points where change might occur. We suggest that 'sharing spaces' would be one possibility for prompting and nurturing fractures that can lead to greater sustainability in food practices.

Keywords Sustainable food consumption · Social practices · Transitions theory · Post-capitalism · Sharing · UK

Abbreviations

GHG	Greenhouse gases
MLP	The multi-level perspective
SPMS	Supermarket shoppers
SPT	Theories of social practice

Introduction

It is widely recognised that Westernised modes of production and consumption are becoming increasingly unsustainable as more countries, globally, adopt them (Jackson 2009; Steffen et al. 2011; Foresight 2011). We now require the equivalent of three to four planets to support typical patterns of consumption in the global North (WWF 2014). Despite this, we know less about how existing consumption patterns might shift to become more sustainable (Mylan et al. 2016). Food is entangled in the nexus of food-energy-water (Leck et al. 2015) and widely accepted as being central for sustainability, as food production, transportation and consumption all contribute significantly to greenhouse gas (GHG) emissions and other environmental problems including dominating land use (Westhoek et al. 2014). Changing food consumption practices may, thus, play a crucial role in reducing environmental impacts.

Exactly *what* is sustainable in relation to food is contentious and disputed. Food sustainability is a relative concept, contingent on time and place (O'Neill 2014), and thus what is 'alternative' or 'sustainable' can be considered and critiqued in multiple ways. As Eriksen (2013) observes, what 'local' means varies between people in different contexts: understanding these various meanings can help understand the myriad

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characteristics and nuances associated with ‘sustainable’ food. Terms like ‘local’, ‘quality’ and ‘sustainable’ are frequently used interchangeably, resist definition and shift as soon as attempts are made to anchor them (Holloway et al. 2007).

For many people, proxies like ‘food miles’ are useful for thinking about sustainable diets, prompting people to ‘buy local’ (Allen and Hinrichs 2007). However, it is disingenuous for researchers to adopt a simplistic ‘local = good’ and ‘global = bad’ dichotomy, as ‘local’ is no guarantee of being healthier, tastier, fairer, or more environmentally benign (Hinrichs 2003). Food miles are, at best, only one way that people conceptualise sustainability—organic and vegetarian diets are also used as proxies for sustainability (Evans and Abrahamse 2009). Further, Weber and Matthews (2008) conclude that shifting less than one day per week’s worth of calories from dairy and red meat to chicken, fish, eggs, or a vegetable-based diet achieves more GHG emission reductions than buying all locally sourced food, while Berners-Lee et al. (2012) argue that a shift to a plant-based diet could save up to 35% of UK’s food-related GHG emissions. Nevertheless, the idea of local food as more environmentally friendly is pervasive, and linked to wider arguments supporting a sustainable, relocalised economy (Sage 2014; Marsden 2010).

In this paper, our research question concerns how people are currently enacting transitions to more sustainable ways of ‘doing’ food, guided by a motivation to explore how the food system could be more sustainable. We work with two groups of food consumers. In the first, individuals were recruited where they mainly do their shopping: in mainstream supermarkets. In the second, individuals self-identify as sustainable consumers actively working to reduce the environmental impacts of their food. We use transitions theory and social practice theory to explore the configurations that arise, and the processes by which change in food practice happens, identifying ‘fractures’ that offer potential ‘points of transition’ where sustainable change *might* be more naturally integrated. We explore what sustainable food means to our participants, and how changes in food consumption practices occur at the individual, micro-scale. We then argue that different scales of ‘fracture’ occur in response to different stimuli, resulting in differing degrees of reflexivity in food consumption practices. Lastly, we point to the role of shared spaces in mediating these fractures and facilitating changes toward sustainable food practice.

Beyond consumer choice: sociotechnical perspectives of consumption and transitions

To understand how food is embedded in social behaviour and practices, and how transition and innovation happens, we employ social practice theory (SPT) and the multi-level perspective (MLP).

SPTs embody a broad range of approaches to explain why people do what they do, and how practices are reproduced. There is “no unified practice approach” (Schatzki 2001, p. 2): Shove and Pantzar’s (2005) heuristic is straightforward and widely applied. Their approach integrates *meanings* (relating to practices), *skills* (competence and knowing how to ‘do’ practices), and *materials* (artefacts, objects, technologies, infrastructures, the ‘things’ (cf. Reckwitz 2002) which enable practices). These elements combine to spark, reinforce, or resist changes in practices. Everyday performances reproduce, and rework practices, resulting in their stabilisation or transformation (Shove and Pantzar 2005). Change occurs where new practices either become established or existing practices fall out of use: ‘change agents’ can be instrumental in these processes. Recently attention has focused on how new and different configurations of practice ‘elements’ and space might transform practices (Gram-Hanssen 2011; Shove et al. 2012; Hargreaves et al. 2013).

The MLP conceptualises dynamic patterns of transition and innovation in sociotechnical systems (Geels 2011, p. 26), and views transitions as non-linear processes that result from the interplay of developments at three analytical levels: the niche, regime, and landscape. Niches represent the locus for radical innovations that offer solutions to bottlenecks in sociotechnical regimes (the nexus of established practices and associated rules that stabilise existing systems). Niches and regimes are framed by an exogenous sociotechnical landscape encompassing cultural norms, values and persistent sociotechnical structures (Späth and Rohrer 2010), representing longer-term influences on niche and regime actors (Seyfang and Haxeltine 2012). Linkages become progressively denser and paths more fixed in moving from niche to landscape (Shove et al. 2012, p. 12); change at the landscape level is slow as a result of lock-in (c.f. Berkhout 2002; Unruh 2002). As Lawhon and Murphy (2012, p. 355) note, the MLP is especially relevant for understanding how and why certain unsustainable development paths have evolved and what constrains the shift towards more sustainable practices. The MLP has been critiqued for its comparative lack of attention to the role of space and agency, as well as a tendency to focus on technological change, rather than social or political change (see Affolderbach and Schulz 2016). It nevertheless offers a useful perspective for investigating the transformation of sociotechnical regimes and examining the role of innovative sociotechnical niches in transitions (Rip and Kemp 1998; Smith 2003; Geels 2005; Schot and Geels 2008), thus offering a way to address claimed theoretical shortcomings in SPT which focuses on stability rather than innovation. In thinking about the types of changes that result from niche experiments, Smith and Raven (2012) develop a useful heuristic of ‘fit and conform’ and ‘stretch and transform’ to

describe incremental and radical changes, respectively. We use these to interpret the changes our respondents described.

Transitions theories envisage change coming from “technocrats ... with the intent of making ... life more efficient and low carbon” (Chatterton 2016, p. 405). This glosses over the complexity and messiness of social life, removes power from grassroots and community actors, and does not allow for change that comes about through citizen innovations in how everyday life is done. While practice theorists have engaged with consumers and consumption specifically, much transitions research focuses at the macro scale, exploring, for example, public procurement processes (Stahlbrand 2017) and historical changes in household food technologies (Grin 2012). Consumers continue to be an overlooked element of research in food systems (Paddock 2017a). Furthermore, Grin (2012, p. 35) has argued that more attention should be paid to the agency involved in daily practices. SPT and the MLP have comparatively little to say about the role and agency of *individuals* (see Grin 2012) and we try, through this paper, to bring ‘people’ into debates about how transitions might occur at the micro-scale. For us, ‘sharing spaces’ offer potential in promoting such transitions.

The notion of ‘transitions’ has entered into the policy lexicon, yet the idea of an economically motivated, rational actor still problematically dominates discussions on consumption. We recognise that there are many problems inherent in complex food systems (Lang and Heasman 2004), but argue that by better understanding the variety of responses and practices undertaken by consumers (and citizen-consumers), individually and collectively, we can devise appropriate responses that acknowledge this diversity. Practice approaches, according to Rauschmayer et al. (2015, p. 218), do not help to distinguish between sustainable and unsustainable practices, and are not able to help devise policy and governance solutions. In combining both theories, we argue that both are necessary to conceptualise change in complex and dynamic systems like food consumption, which can add value in thinking about the kind of (sustainable) future we want.

Methods

This research explores food consumption practices with two groups of consumers in North West England (UK) during 2014–2015. Our first group of participants, whom we have termed ‘supermarket shoppers’ (hereafter SPMS), are chosen to explore stabilised practices of food consumption: purchasing food weekly via supermarket-globalised-food-chains seen as ‘normal’ in the UK. The ‘SPMS’ were recruited via a short, structured, face-to-face survey in regional supermarket stores, and were asked if they would be willing to be involved in a follow-up telephone interview. This was then

followed up with a semi-structured interview with 24 participants. Interviews lasted between 20 and 60 min, covering how they choose the food that they purchase and where they purchase it from, whether they looked for specific information to evaluate food choices (country of origin, production practices, nutrition and so on), as well as cooking practices in the home. As a result of the timing of the in-store survey and local demographics, we purposefully sampled telephone interviewees so that we ended up with six males, 22 over the age of 35, and three who are digital technology users.

Our second group self-identified as sustainable food practitioners, and were reflexive about where their food came from and how it was produced, considerations that affected their shopping, cooking and eating. These ‘pioneers’ combine mainstream food outlets with alternatives such as allotments, foraged, bartered, or self-grown food, cooperatives, and direct food purchasing. The pioneers were contacted via existing sustainability initiatives such as Transition Towns, Incredible Edible, an organic vegetable box scheme, and flyers distributed to various ethical city-centre shops. These participants took part in one of three 2-h focus groups: each session involved between eight and ten participants (total = 26). Sessions were split into three complementary activities to probe: (1) how they currently incorporate issues of food sustainability, and how they defined sustainability; (2) what motivates them; and, finally, (3) how could local infrastructure be improved to support them in future.

Both groups incorporated people who might be considered working and middle class: the pioneer group included people from outside the UK, whereas the SPMS group were predominantly British. The research participants were not selected based on their social class, for as Paddock (2016) indicates, food consumption practices are more complicated than being reduced to considerations of class or ethnicity (although there may, of course, be variation in shopping and eating practices based on class, ethnicity and location). We recognise there will likely be overlaps between our two groups in terms of their food practices (e.g. growing food using an allotment or garden), suggesting a continuum of food practices between the two groups, rather than a binary. What separates our participants, and we believe makes the distinction interesting, is the deep reflexivity and consideration of the pioneers with the intention to reduce the impact of their food practices.

The research methods were chosen to discuss food practices in ways appropriate for each participant group. While it might seem that adopting these methods is incongruous with a practice theory informed approach, this is not unprecedented. It has been recognised that people *can* talk about their practices (Hitchings 2012), and that qualitative interviewing allows participants to reconstruct their ‘ways of doing’ through personal narratives, making sense of what they do as they elaborate in an active process of knowledge

co-creation (Holstein and Gubrium 2004). Further, while focus groups provide a group rather than individual interview, they also provide an opportunity for active knowledge creation, with interaction between researcher as well as other participants. We did not witness social pressure in the focus groups; there was healthy and constructive debate about diverse sustainable food practices. The group environment offered a positive opportunity for sharing experiences and probing each other's practices and values. Both research methods have been used in practice-informed research (for example Paddock 2017b; Plessz et al. 2016; Hitchings 2012). We used telephone interviews with the SPMS as they were more geographically dispersed and more wary: a number of the SPMS approached in store were not even keen to take part in a telephone call so a focus group was felt to be inappropriate. Informed consent was obtained for the research. All participants received a £10 food voucher for taking part. The telephone interviews and focus groups were digitally recorded and transcribed; each participant was assigned a pseudonym. Two researchers coded the transcripts using Nvivo and TAMSAAnalyzer, with codes being derived from the theoretical framework as well as emerging during the analysis (following Strauss and Corbin 1998), focusing on issues such as lifecourse transitions, sustainability aspects, changing practices, growing, shopping, eating and cooking practices. Two researchers reviewed a selection of transcripts to ensure consistency.

In the following sections, we introduce our empirical material and discuss what this might mean for understanding sustainability in food practices, and how 'fractures' might offer scope to unsettle existing food practices.

Fractures as opportunities for transitioning towards sustainable food practices

For many of our participants, food is a mundane activity requiring little thought, being repetitive, 'just a meal' and enmeshed in multiple other practices, for instance preparing meals to coincide with watching television or spending "as long as *The Archers*"¹ (Sally, pioneer) on food preparation. Meals represented "*fixed points in a moving universe*" (Sally, pioneer), providing stability and routine in an otherwise chaotic and changing life. As such, attempts to change food practices could be seen as an unwelcome interference, unsettling one aspect of stability that provides comfort. Further, as Mylan (2015) argues in relation to laundry, practice elements relating to food are often tightly coupled, as well as being linked to other practices, suggesting that changing

food practices may be difficult. Participants described their practices in ways that mirror Franke and Shah's (2003) observation that innovation in practice is an ongoing, rather than a one-off, process. Within this, there may be critical moments of change at different scales, which we conceptualise as 'fractures' when proto-practices and innovations-in-waiting emerge and become real. These 'fractures' may be small-scale but nevertheless represent times when practices start to change and may become more sustainable. As Watson (2012) notes, if enough people adopt small-scale changes it can build momentum in doing things differently. Whilst the idea of critical moments is a seductive idea for changing consumption practices (e.g. Shirani et al. 2015), few have considered these moments from a sustainability perspective (although see Burningham and Venn 2017).

Fitting and conforming: meanings of 'normality' and life transitions

Of the changes participants described in relation to their food practices, the SPMS group were frequently linked to changes in personal circumstance. These changes tended to be subtler in scale and linked to Smith and Raven's (2012) notion of fitting and conforming. A number of studies have focused on the lifecourse transition as an opportunity for different food practices (see Bove and Sobal 2006; Marshall and Anderson 2002). Meah and Watson (2011) highlight the absence of linearity in their participants' engagement with cooking as they move between different transitional points. As might be anticipated, our respondents also described how their food practices changed over time and in response to specific, transitional events such as retirement or having children. For example, Erica (SPMS) reflected that as their children were growing up:

"[and] becoming more independent and going out and coming back at different times ... we started [eating at different times] instead of everybody sitting around the table".

For Erica, the changing practices of working, attending clubs and socialising meant that scheduling family meals was difficult, and required new forms of flexibility. Thus, even where food practices seemed stable, personal circumstances might trigger 'fractures', highlighting how seemingly intransigent practices can be adapted to incorporate new ways of doing things. The 'fractures' experienced by participants such as Erica resulted in changes to food practices that were not radically different from their previous practices, but represented incremental changes that broadly conformed to previous 'usual' ways of performing food. Mainstream discourses of 'normality' in food consumption can be strong, and can tie people in to perform their practices in socially accepted ways, thus limiting potential

¹ The Archers is a long-running, weekly BBC Radio 4 programme that charts rural life and changes in farming communities.

for sustainability. For Rita (SPMS), retirement provided an opportunity for growing food, and coincided with installing renewables to help reduce fuel bills, which had knock-on effects for food practices:

it's nearly three years since the solar panels went on the roof...so all the cooking is done during daylight hours. We try to avoid cooking big meals at night... anything that takes up electricity is usually done within daylight hours...

Whilst the installation of solar panels could be transformative, Rita's food practices had changed only incrementally, for instance buying a slow cooker to cook meat-based meals during daylight hours, but not leading to significantly different food practices (e.g. becoming vegetarian). This linkage between food and energy consumption highlights how food is strongly entangled in webs of practices that relate to food and beyond (cf. Mylan 2015). Transitions can occur during significant changes in living arrangements or personal relationships: the loss of a partner can mean the loss of the skills or time tending an allotment, or changes in food eating habits. Carol's (SPMS) husband had recently died, and she could no longer face cooking turning first to ready meals and subsequently undergoing a more permanent shift in what she bought, cooked and ate:

"I don't cook as often as I did...we eat a lot more salads and a lot of fresh vegetables. Well, we ate fresh vegetables before but they had to be cooked because it wasn't a real meal if it hadn't been cooked! ... I eat more raw food. And, I eat less meat..."

Carol was not particularly concerned about sustainability, but the changes following the loss of her husband led to her moving away from 'meat and two veg', that her husband considered to be 'proper' food, to salads and raw foods (potentially more sustainable but which he saw as 'rabbit food'). Carol's earlier food practices revolved around an 'ethics of care' (McEwan and Goodman 2010) for her husband and conforming to familial expectations of 'proper' food. Changing meanings about what is 'proper' food is a challenge facing any transition towards sustainable (and healthier) food consumption practices. Steven (SPMS) talked about how he and his wife purposefully ate ready meals. For them, ready meals offered variety and convenience, which meant that they could spend time doing things other than cooking. They had tried becoming vegetarian once before, but with the advent of BSE² in British livestock they tried again:

...with the mad cows thing we thought it was totally alien to the way mother nature intended things to be, that herbivores were being turned into carnivores, that grass-eating cows were eating their own products and things like that. So it became a conscious, 'that is not right, we should not be interfering in the natural food chain like that'. ... we didn't want to be part of it.

This SPMS couple had thus experienced two concurrent shifts in their food practices: to vegetarian food, and from cooking regularly to ready meals as they increasingly became available and as they learnt more. Arguably, a vegetarian diet is more planet-friendly (Berners-Lee et al. 2012), but for Steven the shift in practices arose from a concern about animal welfare and "interfering in the natural food chain." Their food purchasing habits, however, centred around car-based leisure activities, facilitated by the motorway network, showing how food can be interwoven with other practices such as travel, leisure, socialising, and so on. Louise (SPMS) talked about growing up with a family who regularly ate meat and were interested in cooking, which influenced her own cooking:

... when I was a child I was brought up on meat and veg every night. And my mother, my dad, we used to get a lot of game, and my grandmother was an absolutely brilliant cook. And I suppose times change, you meet different people, you try different things, don't you? I try to give my kids as much, try as many different things as they can ... it's important socially ... and as a parent it's really important that my kids are fed properly and [can] look after themselves.

Having children was significant for many respondents' food practices, so the rhythms of family life and an ethics of care in providing 'proper' food for one's family influence what is eaten. For some, their children brought new ideas and practices to the home which subsequently changed family practices, for instance children wishing to follow a vegetarian diet or being conscious of country of origin. However, the expression of new or different 'meanings' can lead to tensions between family members, making it difficult to integrate new practices or changes in practices where a consensus on meaning (e.g. environmental sustainability or animal welfare) does not exist, or where it is at odds with other meanings (e.g. a protein-intensive diet for bodybuilding). In such cases, if meanings cannot be negotiated, practices get (re-)negotiated around existing meanings. For Jackie (pioneer), her questioning approach led to unsatisfactory discoveries (the airfreighting of flapjack-style snack bars; emissions associated with imported blueberries), which affected familial consumption practices and sometimes clashed with accepted norms in the wider family. This questioning approach sat uncomfortably with others. For

² Bovine spongiform encephalopathy (BSE) also known as 'mad cow disease'.

another pioneer (Melissa), her vegan diet was more readily accepted by others if she claimed it was on health grounds, rather than animal welfare and sustainability.

The shifts described here³ tend to relate to social changes such as retirement, children growing up and the loss of a partner, and resulted in ‘fractures’ that incrementally changed food practices, albeit not necessarily driven by sustainability concerns. In the next section, we consider potentially more deliberative ‘fractures’.

Stretching and transforming: moments of radical change

For many pioneers, food practices were never completely stable but rather relational as new ideas about sustainability were incorporated, or new places were visited, resulting in further changes.

Sometimes dramatic shocks can cause deeper ‘fractures’ that substantially change practices, and help to facilitate a greater shift towards sustainability. Here, changes to meanings may occur that prompt significant and ongoing changes in practice. George (pioneer) talked about reading Frances Moore Lappé’s *Diet for a Small Planet* (1971) in the 1970s at a time when a number of concurrent ‘shocks’ had the potential to destabilise practices. For instance, Carson’s *Silent Spring* (1962), 1972 Oil Crisis, the Ecologist’s *Blueprint for Survival* (Goldsmith and Allen 1972), and the *Limits to Growth* report (Meadows et al. 1972) were all raising the profile of complex environmental crises and the growing consumption culture. However, whilst these combined events served to change the practices of *some* people, for others this was a temporary wobble in the mainstream: environmentally harmful practices resumed as soon as the oil crisis was resolved. George described how in the:

early 1970s there was famine in Africa, you know pictures of starving babies ... and I found out that the Generals of that country were selling their maize crop to buy guns and Rolls Royce’s and ... we were feeding the maize to chickens and pigs ... at the same time there was a book by Frances Moore Lappé, *Diet for a Small Planet*, ... she was saying if you eat properly planned vegetarian food then you don’t need to ... sell the maize from under the people, letting the people starve ... and those two things hit me at the same time and ... I went vegetarian ...

Vegetarianism was previously seen as an inferior diet choice, leading to malnutrition, whereas Lappé convincingly offered it as a proto-practice or innovation-in-waiting (cf.

Shove and Pantzar 2005, p. 48). A window of opportunity (Geels and Schot 2007) can provide such ‘innovations’ with an opportunity to expand into the mainstream: the landscape pressures in the 1970s provided one such opportunity. However, it was not just reading the book that prompted George’s changes, but the combination of a persuasive new meaning around vegetarianism combined with geopolitical pressures.

The role of place and infrastructures

Place, and movements between different geographical contexts, can trigger reflexive processes so new experiences can (re)shape food consumption practices. The MLP literature has recently started to encompass the role of geography, and the impacts of space on transitions and sociotechnical systems (Murphy 2015; Gibbs and O’Neill 2014). Social practice theories have also begun to consider how practices are spatially contingent (Gram-Hanssen 2011). Geography has a significant impact on what people consume: not only are you what you eat, but you are also *where* you eat (Bell and Valentine 1997). Place had affected the practices of respondents as they had lived in, or visited, different places, both within the UK and beyond. For these respondents, such experiences influenced practices of consumption, as did the infrastructure in the places they currently reside.

“[we were] talking about being in a different environment, [which] made us reconsider what’s sustainable... for me I moved to China and everything took on a new appreciation of scale ... I started to think about my diet a lot there and what I was eating and how that contributed to sustainable actions” (Philip, pioneer)

For Philip, moving to China stimulated new ideas about food consumption. Furthermore, Philip had lived in a vegan-cohousing environment, which proved important in developing the skills that he uses to practice this diet: “*they showed you...what are the key tools. So a blender is a really important...if you’re going to be vegan, because you can do so much more – you can make your own cashew milk, you can make hummus...I wouldn’t have thought to do that*”. For Joyce (pioneer), her boyfriend was vegetarian and he had influenced her eating habits, but moving to the UK also affected what she ate:

I didn’t think about these issues before but when I moved to the UK I [found] ... it was possible to shop more sustainably and think about organic food and the ... environment

The power of such ‘cultural contrasts’ or spatial fractures, stimulated by moves, or visits, to new places and interacting with others, can generate possibilities for changing practices. The resultant contrasts may stimulate reflection on the taken-for-granted ways of doing things, thus challenging

³ Due to space considerations, we can only present a small selection of our findings, although these were typical of many respondents.

discourses of 'normality'. Groves et al. (2016) discuss how moving from an urban to a rural area led to a renewal of identity, and meanings of rural living led to a shift in energy consumption practices for their participants. This suggests that it is not only international relocation that can trigger significant changes in consumption practices. Place can alter the meanings and materiality of consumption, through what may or may not be available, or accepted.

Place does not only create cultural differences in food practices and discourses, but the available infrastructures can affect practices. For instance, the limitations of the local infrastructure mean that 'big, ethical supermarkets' are not available, despite being preferred by respondents in comparison to the local, cooperative food shop. Many pioneers did not object to supermarkets *per se* but highlighted how they would like to see 'supermarkets' that sold *different* produce: in this way normative practices of shopping in supermarkets are altering niche images. Similarly, for Cynthia (pioneer), a vegan, the absence of vegan restaurants means that "*when we go out it's hard*". In contrast, they had previously "*lived in places where there are cafes and large vegan networks...where you live can influence what you can eat.*" For Michelle (pioneer), eating out meant she was "*temporarily vegetarian*" as she could not guarantee the provenance of items like meat and eggs in the same way she could at home. Thus, practicing more sustainable food consumption can be "*a bloody effort*" (Gerald) in the northwest of England, despite the city being "*a fairly switched on town*" (George): for George "*entrepreneurial timidity*" was limiting options. The mainstream can close down opportunities in terms of alternative or ethical food shops, while those without access to a vehicle are unable to visit farm shops based out of town. For Gerard, this meant that he would "*go to places that are simply in the town, you know, [local ethical foodstore], Sainsbury's, Marks and Spencer's*" (pioneer). This meant that Gerard's food shopping choices were more likely to be supermarket-based, despite his desire to perform his food practices otherwise.

A complex of place, mainstream discourses of supermarkets, entrepreneurship and sustainability were all influencing local food practices. Working with existing infrastructure could offer an incremental way to encourage a more sustainable future, for example, supermarkets as intermediary actors could champion sustainable food, thus creating a space for learning about different and more sustainable food options, potentially with cooking classes or talks.⁴ As Stahlbrand (2017, p. 78, drawing on Kania and Kramer 2011) notes in relation to universities' procurement practices,

intermediary organisations (like supermarkets) could facilitate a purposive institutional response to creating "collective impact". As such, initiatives of this nature could be one way to create "more sustainable spaces of possibility" (Marsden and Franklin 2013, p. 639).

Reconsidering food practices: social consumption

Fonte (2013) has noted the role of Solidarity Purchasing Groups (GAS)⁵ in creating a shared space for food consumption that enables collective critiques of the dominant model of food provision, although the social aspects of food consumption are underexplored. Our respondents demonstrated the ways that social connections either hindered or helped their (sustainable) food consumption. George noted that by living in a co-housing environment, residents can share home-grown produce as well as collectively ordering from an ethical cooperative, thus reducing waste and sharing effort. However, George still calls in to Sainsbury's supermarket when driving back from work. Paddock (2017b, p. 133) similarly found that people may rebuff supermarkets in principle, but they may be unable to practice this as a result of being "locked into routines and infrastructures that do not support this lifestyle". The spatial effects of what is (not) available locally also affected respondents' practices. For Gerard, impromptu decisions to socialise with friends meant that his intention to be sustainable did not always work in practice. For others, eating away from the home, or eating with others, underlined how the social nature of eating can challenge the enactment of sustainability: Isabella (pioneer) talked about her young son:

...he would just live on baked beans and sausages if it was his choice but we obviously encourage him to change but it's a slow process...the funny thing is, we've got a vegan neighbour and once he came back from the allotment wanting to eat with them and I thought 'are you sure?' but he actually had risotto with a green bean thing!

She further reflected that as her son has recently started school this had led to more new influences on food consumption choices:

... I don't know what he's eating, probably a lot of chips, fish-fingers and baked beans

In this way, social connections may support or create barriers to enacting sustainable consumption. Compared to the

⁴ The Italian retailer *Eataly* acts in this way to some extent, but can be critiqued for its sourcing and buying practices. Although problematic, *Eataly* could be seen as a change agent in a comparatively stable supermarket system.

⁵ Gruppi di Acquisto Solidale (GAS) are groups of households that cooperate in buying food and other goods directly from the producers on the basis of ethical and environmental criteria and considerations of solidarity (Fonte 2013, p. 230).

fractures we described in relation to the SPMS, which were quite practical and situated in nature, pioneer participants experienced fractures via meanings. These meanings tended to be transformative in relation to mainstream food, and we saw examples where they carried through to 'stretch and transform' incumbent practices at the individual scale (e.g. through ethical supermarkets, domestic food growing practices, and eco cohousing), which in turn 'stretch and transform' innovations in food practices (e.g. shared ethical meals in co-housing with food supplied from home-grown produce). However, these are still the exception, and it is more usual that such transformative meanings are not fully manifested in everyday practices because they are incompatible with the existing practicalities and demands of everyday life, or cannot be related to current ways of doing that are viewed as 'normal'.

Those at our focus groups may be considered change agents, carriers of more sustainable food practices (Shove and Pantzar 2005, p. 54) or systems builders (Geels 2014): some were sharing innovations through leading forage walks or buying groups, sharing vegetarian recipes, and volunteering in local food growing projects. In this way, these change agents were helping to shift perceptions of 'normality' and embed ideas about how practices could be performed otherwise. New ways of provisioning food can help support and embed other practices, so that foraging for fruits and other wild foods can help support practices of sharing food, as part of "nurtur[ing] and develop[ing] radical innovations in niches 'below the surface' of incumbent regime actors" (Geels 2010, p. 498), as Sally who runs foraging walks described:

I live off all kinds of bits and bats that people leave in my house, would you like a slice of something or other, would you like eggs, I love all that cos I just swap stuff all the time, would you like a jar of jam instead? ... but that's why I forage and grow stuff on an allotment so I can live in a jam cupboard economy...

For Sally, this practice provided the scale required in sustaining a varied diet that was rich in non-commercial foods. People like Sally were keen to share their knowledge, and co-opt new practitioners or transfer and diffuse niche practices more widely. Sally and those like her were acting as *system builders* who aim to actively create changes in the wider system (de Boer et al. 2009). Although it is unlikely that all people will change their consumption practices so dramatically, as Smith (2016) argues, it is important to recognise the alternative vision and values of such niches as they create space and mobilise resources for very different forms of innovation (see Chatterton 2016).

Discussion: 'fractures' as a means of transitioning towards sustainability?

Conceptualising 'fractures'

Transitions at the societal scale are difficult to bring about, difficult to grasp conceptually for practitioners, and tend to happen slowly. Further, they can be fraught with contestations and dissonance. The individual practitioner is often obscured in such transitions, and we attempt to bring them in to such discussions here. We suggest 'fractures' can help us think through how spaces open up (or not) for changes in practices, which can reinforce ('fit and conform') or transmute ('stretch and transform') incumbent food practices (Smith and Raven 2012). But, like Shove (2004), we emphasise that the trajectory of such practices becoming 'normal' requires both vertical integration (practice innovations become routinised) and horizontal integration (recruitment of practitioners), and the interactions between multiple dynamic systems that together make up food practices. We highlight the importance of feedback loops between vertical and horizontal integration in transitioning to 'normal' alternative food systems. For us, 'fractures' are representative of the small cracks that start to appear in practices at the micro-scale regime (individual, households, small communities of practice such as co-housing) that offer the opportunity for moving towards shifts at the meso-scale.

Evolving ideas about food provided opportunities for 'fractures' and subsequent changes in food practices in our study. These came about from changing roles in relation to food (as with lifecourse events), and from exposure to new perspectives (travel, social networks, the media, literature, and public events). Fractures sometimes resulted in more significant changes ('stretch and transform') where new ideas about food lead to changes in mainstream food practices via niche-level innovation. Otherwise, they resulted in changes that conformed with the dominant regime, fitting in with mainstream practices. Figure 1 illustrates these trajectories. It is worth noting that exposure to new ideas does not always lead to fractures and niche innovation, but these ideas may remain a dormant element of practice that come together in future performances of food (illustrated on the left side of the figure).

Lifecourse and public events may prompt reflection on practices and experimentation with how food is done. Whether or not transitions occur depends on 'a combination of social, cultural and material elements' (Paddock 2017b, p. 135), all of which vary spatially and temporally. From our research, practices that appear seemingly fixed between both groups, such as eating vegetarian diets or 'proper' food, or shopping at ethical stores, might cease if

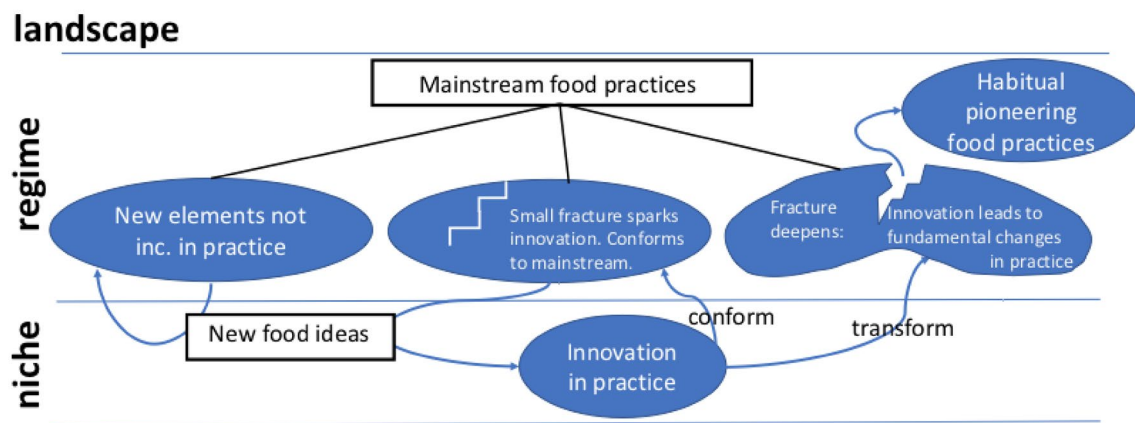


Fig. 1 Trajectories of innovation in food practices

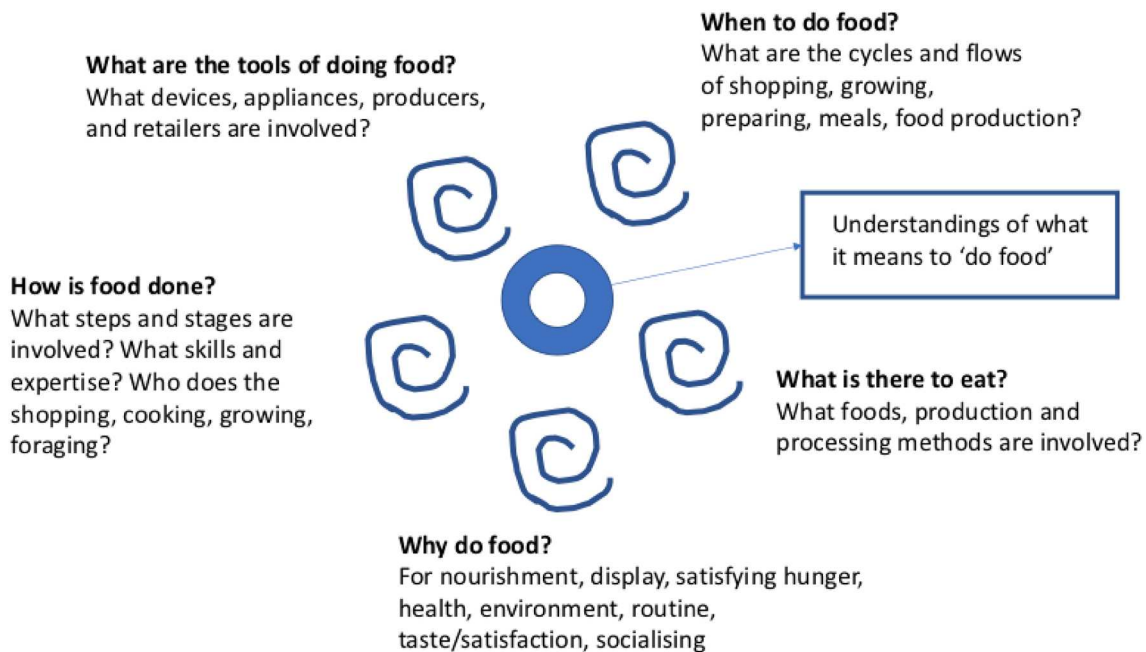


Fig. 2 food consumption as a system of systems (adapted from Shove 2004)

the supporting infrastructures or meanings change, such as moving house, or the death of a partner.

To illustrate the wider system interdependencies that make up food consumption for our participants, we have adapted an illustration of laundering as a "system of systems" from Shove (2004), in Fig. 2. This illustrates how what it means to 'do' food, like laundry, is an artefact of multiple systems, including how household life is organised, what foods are available (agricultural, supply, trade systems), meanings associated with food (such as sustainability), and the knowledge and skills available for doing food. To establish a trajectory from niche innovations in food practice to habitual regime practices (in Fig. 1), then,

involves interactions between all of these systems. And, changes in any of these systems can contribute to evolving understandings of what it means to do sustainable food. It is not yet possible to identify societal scale shifts in food, but the MLP and SPT can help identify barriers and opportunities for this. SPT emphasises stability, everyday life, and wider communities of practice, and we see how new elements (e.g. meanings about food) can cause small 'fractures' in these. The MLP focuses on innovation and diffusing scalable change in the regime, and tends to ignore the role of community actors and individuals, which as we suggest here can trigger change at the micro-scale. We employ the MLP in an attempt to focus on innovations in practice. Like the

hairline fractures that can appear on a sheet of glass before a more significant crack or a break, these changing micro-scale food practices may be the start of something small that can lead to broader and deeper regime changes.

Visualising sustainable food-worlds

In terms of thinking about what these currently small-scale changes might mean, we draw on the work of Deleuze and Guattari (1987, in Chatterton 2016), who conceptualise rhizomatic networks connecting radical projects. Chatterton (2016) employs these ideas to suggest that small-scale initiatives and non-hierarchical networks, although not necessarily contiguous, can connect horizontally, across space, towards a more sustainable future. This moves away from transitions theories' notion of 'scaling up' to the meta-level, instead recognising that small initiatives can have a collective impact. Chatterton (2016, p. 411) continues that thinking in this way helps shift towards a networked micropolitics that, as smaller scale initiatives connect and collaborate, can spread in multiple ways to counter and corrode the dominant [capitalistic] regime (Scott-Cato and Hillier 2011, in Chatterton 2016, p. 411). For Chatterton, and others, this involves seeing beyond the merely quantitative, to acknowledge the qualitative issues involved in foraging walks, living in co-housing and community food growing, for example. This may require us to recognise different actor groups, and to see value in the disruptive social innovations that can connect vertically and horizontally, and which seek to influence a range of stakeholders and institutions.

Chatterton (2016) discusses post-capitalism in relation to transitions and argues that it is important to visualise the kind of world we want to *transition to*. In relation to the food system, how can we have sustainability if all we do is follow what has gone before (i.e. expect that these changes can reach the global scale of Walmart)? If we continue to measure sustainability against a wholly unsustainable system, we will never envisage the kinds of transformations required. How, then, might we transition to regime-level change where sustainability is the new normal? Chatterton (2016, p. 404) talks of thinking about transitions as a means of slowing and eroding capitalist processes of commodification and challenging capitalist social relations. While he discusses co-housing specifically, the same terms apply equally well to considerations of the food system. Although our research started before Chatterton (2016) wrote about transitions and post-capitalism, our findings point in the same direction: foraging walks may seem small-scale but are part of a movement that encapsulates those who rebel against capitalism and value nature, and who are part of the process of thinking about the possibilities that might be needed to repair the damages caused by capitalist processes, and who are, at the micro-scale, developing the daily

competences necessary to facilitate social change. It is from deepening and widening at the interstices that more radical change may emerge. Of course, as Chatterton argues (2016, p. 405), what might come after capitalism can only come from where we currently stand, using the multiple and messy resources and capacities that present themselves, but we nevertheless require examples of alternatives here and now to help move towards a sustainable and possibly post-capitalist future. That is, rather than a wholesale replacement of the regime, we might see the regime being perforated by smaller initiatives and practices that eventually unravel the regime from within.

Thus, the process of reimagining everyday food is part of a (normative) visioning process about what kind of future we want. As Chatterton notes, much of the transitions literature leaves this point unanswered. If we envision the kind of future we hope to achieve, we can start to think about what kinds of practices might be necessary (e.g. shopping in high-street ethical supermarkets stocking a diverse range of affordable and sustainable products) and the paths required to bring them about. Furthermore, how can policy makers encourage or promote this? It might be that rather than thinking about individuals as rational economic actors, policy makers can start to change the competences, meanings and materials that shape social life, by promoting, for example, organic agriculture and relocalised food systems (by changing systems of subsidies for example), rather than global food chains. For the MLP this means challenging the institutions and infrastructures of the regime and landscape (cf. Grin et al. 2010), whilst recognising, as Shove et al. (2012, p. 145) argue, that it entails a deep understanding of such sociological and economic (and environmental) processes of which policy makers are also part. Policy change may thus involve experimentation and adjustment in a series of steps that continually evolve, rather than a new, final policy arrangement. As Shove et al. (2012, p. 158) continue, what is considered 'normal' (individually and collectively) needs recalibrating in many spheres for complex issues like climate change. For transitions theorists (e.g. Smith et al. 2005; Loorbach and Rotmans 2010), policy-making is a reflexive and recursive interaction between state actors and non-state actors, but there is a need to recognise the (unequal) power relations within this dynamic and to accord greater weight to alternative non-state actors.

We argue that such slow eroding requires a path of both horizontal and vertical integration that is self-reinforcing, as illustrated in Fig. 3. On the one hand we require the recruitment of new practitioners of sustainable food, and on the other hand we need sociotechnical change that is more supportive of such practices. We illustrate on the right side of Fig. 3 that whilst transitions to imagined sustainable futures might be conceived as linear, the role of sociotechnical systems along such a trajectory will change at different points

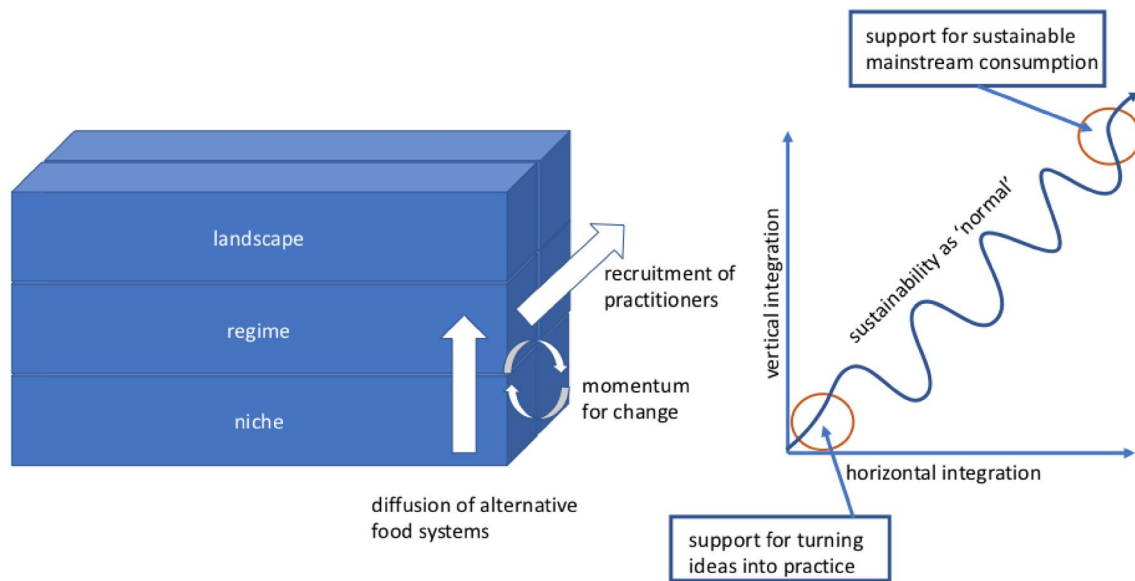


Fig. 3 Bridging the Fit and Conform/Stretch and Transform divide: 'Sharing spaces' for sustainability

in this. In the next section we describe how 'sharing spaces' might be a useful concept for scaffolding such a process.

Sharing spaces

Learning about different ways of doing things is important for sowing the seeds of change, and examples of people who are already shopping, cooking and eating more sustainably can highlight these possibilities. Such examples can help enact new discourses (meanings) that might challenge long-ingrained unsustainable discourses. Social interactions and negotiations can have a large influence on the introduction, development, or abandonment of elements of practice necessary to enact sustainability transitions or transformations. Exposure to such 'alternative' environments can lead to the development of new meanings or skills important for embedding changes in practice. As Shove et al. (2012) suggest, communities of practice and existing social networks (see also Sahakian and Wilhite 2014; Bartiaux 2008) are important for recruiting new practitioners and shifting practices. Such communities of practice can be conceptualised as spaces of experimentation and learning, and may help prompt the 'fractures' we conceptualise here: these places and processes are reminiscent of Anderson's (2007) 'encounter spaces'. We conceptualise these places as 'sharing spaces' such as co-housing living arrangements or foraging walks, or the GAS groups described by Fonte (2013), whereby it is possible to learn about sustainability possibilities by encountering them. 'Sharing spaces' may thus offer a means of stimulating 'fractures' in practices that can lead to the longer-term adoption of more sustainable practices. Groves et al. (2016) similarly conclude that such collective

spaces offer potential for the 'difficult conversations' relating to change. Similarly, Berry et al. (2014) discuss open eco-homes as a means of producing situated learning about low energy building approaches. How 'sharing spaces' promoting sustainability can be encouraged is a germane question for policy makers.

Although 'radical' practices can and do diffuse from niches to the mainstream (regime), for example in relation to the increasing availability and acceptance of organic produce, stigmas can remain. We are not claiming that these practitioners can affect change at the landscape scale, in particular as the landscape represents exogenous influences (like climate change, for instance) that are difficult for individuals to change. However, we are suggesting that change at the regime level is possible, through the 'work' of "systems' builders" and innovators of everyday practice that generate capacity for alternative systems, but also localised regime changes through the collaboration of sustainability-driven individuals. We argue that our respondents were acting as systems builders or change agents, through creating local level niches like foraging walks, community orchards, food assemblies and food festivals. Indeed, Rauschmayer et al. (2015, p. 212) note the links between individual-level change and societal-scale change. Niche activities constantly evolve so that what is deemed 'radical' changes: 'radical' food practices can incorporate living in an eco-village, growing your own food or practising permaculture (see Veteto and Lockyer 2008), rather than buying organic food via the supermarket. Niches, regimes and practices continually evolve, and are relational as new ideas develop and challenge norms and practices in different places. Furthermore, as the mainstream adopts convenient niche elements, the niche

itself continues to evolve as some ‘pioneers’ try to maintain their difference (O’Neill and Gibbs 2016; Chatterton 2016). As Smith (2006, p. 456) observes, the relationship between niche and mainstream is dialectical, as developments in each are carried out with reference to the other. In other words, practices in the niche and the ‘mainstream’ are symbiotic and co-evolutionary (c.f. Shirani et al. 2015). While some of the pioneers practised permaculture and ‘freeganing’,⁶ and were considering ways to live without ‘normal’ technologies such as refrigerators, these practices are unlikely to be adopted sufficiently widely to realise substantive impacts at larger scales. Ideally, a balance between such radical practices and more attainable sustainable consumption practices should be emphasised, for example, through initiatives that promote better access and ways to participate in sustainable food practices. This could include, for instance, subsidised ethical supermarkets (e.g. at present food vouchers and food banks often offer processed food to those in need rather than, say, cooking lessons and organic fruit and vegetables) and community gardens. Furthermore, many mainstream funding programmes and policies support what are perceived by many to be unsustainable practices, and incumbent vested interests may be heavily involved in designing such policies,⁷ which if redirected towards examples like ethical supermarkets, organic growing, or community supported agriculture would help promote greater sustainability in the food system. Suggestions such as ethical supermarkets might be less intimidating as they align better with current mainstream values and practices. If change in food practices is to be encouraged, policy makers and their programmes need to better account for the complexity and the myriad ways that food practices are interwoven into other practices and social conventions of ‘normality’.

Conclusions

In responding to our research question of how people are currently enacting sustainable food practices, we suggest that transitions in practices may occur at points of ‘fracture’. These ‘fractures’ can provide important opportunities for food sustainability, and may occur as a result of learning a new skill, moving house, having a family, following public events such as a high profile media campaign or via specific ‘sharing spaces’, such as co-housing, forage walks and community gardens. The respondents in both our

groups discussed how they *had* changed their food practices in response to particular ‘fractures’. For some, this resulted in food practices that were more sustainable. The food practices of the pioneers may be part of what Purcell (2014, p. 151–2) describes as “imagining and demanding a possible [new] world”. He argues these “possible worlds” (see Gibson-Graham 2008) are harder to visualise and enact because they radically challenge incumbent ways of life and powerful vested interests, but it is nevertheless important to attend to such visualisations and the practices they entail for they may constitute future transitions (see also Chatterton 2016). As Swyngedouw (2013) argues, transition is not about consensus but about being open to struggles and conflicts, and engaging in intensive debates.

Many pioneer respondents described how learning from others had profound effects on their shopping, eating and cooking practices. Places where experimentation can take place, leading to new ideas and experiences that influenced and promoted more sustainable wider ways of living that can actively inspire more ‘stretching and transforming’ to occur. It is, therefore, imperative to understand how these ‘fractures’ or moments of disruption come about, and how policy makers and other actors can stimulate such shifts, given that traditional behaviour change models often do not work (Mylan et al. 2016; Crocker and Lehmann 2013; Shove 2010). As Rauschmayer et al. (2015, p. 219) conclude, sustainability transitions rely on learning and engaging dynamics at the individual as well as societal scale.

Space (in the large and in the small) is something that limits, extends and mediates the possibilities for practice change. Affecting change through spaces at a greater scale (e.g. creating more cohousing communities or community kitchens) requires greater coordination and encouragement by regime actors, such as policy makers or mainstream food manufacturers and retailers, if sustainable consumption is to become ‘mainstream’. ‘Fractures’ may be seen as a possible point of intervention for stimulating further change towards sustainability, but there still needs to be recognition of multiple approaches to encompass diversity. If policy makers continue to target individuals as rational, economic actors it is unlikely that changes in food practices will occur at the scale or speed which is required to limit climate change to 1.5 or even 2 degrees. This study is naturally limited in scope as it concerns one region in the UK; further research is needed to test these ideas on a larger scale, e.g. via wider scale social network analysis and large-scale survey on sustainable values and practices. While at present these findings are modest, as Watson (2012, p. 488) argues, “systemic change happens ‘if enough people do enough things differently enough’.” Further, Foden et al. (2017) suggest that we need to better understand what people do and why, learning from existing diversity.

⁶ A person who rejects consumerism. Freeganing as a philosophy is opposed to neoliberal, capitalist markets and seeks to embrace a way of living differently.

⁷ <https://www.ecowatch.com/eu-glyphosate-monsanto-2485590981.html> (accessed 21 Dec 2018).

One clear question arising from our study, is the extent to which 'stretching and transforming' toward more sustainable food can be 'designed in' to our industrialised food system to more widely target mainstream consumers and reshape supporting food industries and infrastructures. While our studies do not suggest that technology is playing a particularly significant role within our SPMS or pioneer groups in terms of their immediate 'in store' shopping practice, it is clear that technology is having an increasing mediating role in supporting the building of community practice, development of new skills and competence, and supports research into the ethical and sustainable supply of foods. We explore some implications for the design of new digital technologies in this respect in Clear et al. (2016). Globally, especially in the developed world, food is increasingly accessed online and on-demand. Online grocery shopping currently stands at 6.9% of overall food and grocery sales in UK, and is growing by 20% per annum. Food delivery services such as Deliveroo, Just Eat, and ÜberEats bring food to the door 'on demand', facilitated by digital technologies, although such 'services' can be critiqued for their labour practices and the social injustices they reproduce highlighting how different aspects of 'sustainability' can be antagonistic.⁸ While the provenance and environmental footprint of such services is as yet uncharted, these services are dynamic and represent one way that food practices are changing and could open up space for reflexivity with regard to the food sustainability.

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⁸ Thanks to Helen Coulson for this observation.

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